

October 16, 2015

MARK PEACOCK
DUKE ENERGY EDWARDSPOINT IGCC
15424 E. STATE ROAD 358
Edwardsport, IN 47528

RE: Project: Grey Water Treatment Profile
Pace Project No.: 50129599

Dear MARK PEACOCK:

Enclosed are the analytical results for sample(s) received by the laboratory on October 09, 2015. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Kenneth Hunt
kenneth.hunt@pacelabs.com
Project Manager

Enclosures

cc: Mr. Rhett Moody, Duke Energy (Edwardsport Generating Station)



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Grey Water Treatment Profile

Pace Project No.: 50129599

Indiana Certification IDs

7726 Moller Road, Indianapolis, IN 46268

Illinois Certification #: 200074

Indiana Certification #: C-49-06

Kansas Certification #: E-10177

Kentucky UST Certification #: 0042

Kentucky WW Certification #: 98019

Louisiana Certification #: 04076

Ohio VAP Certification #: CL-0065

Oklahoma Certification #: 2014-148

Texas Certification #: T104704355-15-9

West Virginia Certification #: 330

Wisconsin Certification #: 999788130

USDA Soil Permit #: P330-10-00128

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SAMPLE SUMMARY

Project: Grey Water Treatment Profile

Pace Project No.: 50129599

Lab ID	Sample ID	Matrix	Date Collected	Date Received
50129599001	55:Filtered Water 20151006-032	Water	10/06/15 09:45	10/09/15 09:27
50129599002	16:GW Influent 20151006-033	Water	10/06/15 09:55	10/09/15 09:27
50129599003	16:GW In Process 20151006-034	Water	10/06/15 09:50	10/09/15 09:27
50129599004	55:Filtered Water 20151008-015	Water	10/08/15 08:20	10/09/15 09:27
50129599005	16:GW Influent 20151008-016	Water	10/08/15 08:10	10/09/15 09:27
50129599006	16:GW IN Process 20151008-017	Water	10/08/15 08:15	10/09/15 09:27

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SAMPLE ANALYTE COUNT

Project: Grey Water Treatment Profile

Pace Project No.: 50129599

Lab ID	Sample ID	Method	Analysts	Analytes Reported
50129599001	55:Filtered Water 20151006-032	EPA 200.8	DMT	2
50129599002	16:GW Influent 20151006-033	EPA 200.8	DMT	2
50129599003	16:GW In Process 20151006-034	EPA 200.8	DMT	2
50129599004	55:Filtered Water 20151008-015	EPA 200.8	DMT	2
50129599005	16:GW Influent 20151008-016	EPA 200.8	DMT	2
50129599006	16:GW IN Process 20151008-017	EPA 200.8	DMT	2

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ANALYTICAL RESULTS

Project: Grey Water Treatment Profile

Pace Project No.: 50129599

Sample: 55:Filtered Water 20151006-032		Lab ID: 50129599001		Collected: 10/06/15 09:45	Received: 10/09/15 09:27	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Arsenic	ND	mg/L	0.0010	1	10/13/15 09:00	10/14/15 08:22	7440-38-2	
Selenium	ND	mg/L	0.0010	1	10/13/15 09:00	10/14/15 08:22	7782-49-2	

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ANALYTICAL RESULTS

Project: Grey Water Treatment Profile

Pace Project No.: 50129599

Sample: 16:GW Influent 20151006-033 **Lab ID:** 50129599002 Collected: 10/06/15 09:55 Received: 10/09/15 09:27 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Arsenic	0.033	mg/L	0.0010	1	10/13/15 09:00	10/14/15 08:27	7440-38-2	
Selenium	0.14	mg/L	0.0010	1	10/13/15 09:00	10/14/15 08:27	7782-49-2	

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ANALYTICAL RESULTS

Project: Grey Water Treatment Profile

Pace Project No.: 50129599

Sample: 16:GW In Process		Lab ID: 50129599003		Collected: 10/06/15 09:50	Received: 10/09/15 09:27	Matrix: Water		
20151006-034								
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Arsenic	ND	mg/L	0.0010	1	10/13/15 09:00	10/14/15 08:33	7440-38-2	
Selenium	ND	mg/L	0.0010	1	10/13/15 09:00	10/14/15 08:33	7782-49-2	

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ANALYTICAL RESULTS

Project: Grey Water Treatment Profile

Pace Project No.: 50129599

Sample: 55:Filtered Water 20151008-015		Lab ID: 50129599004	Collected: 10/08/15 08:20	Received: 10/09/15 09:27	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Arsenic	ND	mg/L	0.0010	1	10/13/15 09:00	10/14/15 08:38	7440-38-2	
Selenium	ND	mg/L	0.0010	1	10/13/15 09:00	10/14/15 08:38	7782-49-2	

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ANALYTICAL RESULTS

Project: Grey Water Treatment Profile

Pace Project No.: 50129599

Sample: 16:GW Influent 20151008-016 **Lab ID:** 50129599005 Collected: 10/08/15 08:10 Received: 10/09/15 09:27 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS								
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Arsenic	0.038	mg/L	0.0010	1	10/13/15 09:00	10/14/15 08:43	7440-38-2	
Selenium	0.16	mg/L	0.0010	1	10/13/15 09:00	10/14/15 08:43	7782-49-2	

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ANALYTICAL RESULTS

Project: Grey Water Treatment Profile

Pace Project No.: 50129599

Sample: 16:GW IN Process 20151008-017		Lab ID: 50129599006		Collected: 10/08/15 08:15	Received: 10/09/15 09:27	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Arsenic	ND	mg/L	0.0010	1	10/13/15 09:00	10/14/15 08:48	7440-38-2	
Selenium	0.010	mg/L	0.0010	1	10/13/15 09:00	10/14/15 08:48	7782-49-2	

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QUALITY CONTROL DATA

Project: Grey Water Treatment Profile

Pace Project No.: 50129599

QC Batch:	MPRP/18196	Analysis Method:	EPA 200.8
QC Batch Method:	EPA 200.8	Analysis Description:	200.8 MET
Associated Lab Samples: 50129599001, 50129599002, 50129599003, 50129599004, 50129599005, 50129599006			

METHOD BLANK:	1400018	Matrix:	Water
Associated Lab Samples: 50129599001, 50129599002, 50129599003, 50129599004, 50129599005, 50129599006			

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.0010	10/14/15 06:45	
Selenium	mg/L	ND	0.0010	10/14/15 06:45	

LABORATORY CONTROL SAMPLE: 1400019

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	.04	0.036	89	85-115	
Selenium	mg/L	.04	0.036	90	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1400020 1400021

Parameter	Units	50129430001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/L	ND	.04	.04	0.036	0.036	89	90	70-130	1	20	
Selenium	mg/L	ND	.04	.04	0.036	0.036	89	89	70-130	0	20	

MATRIX SPIKE SAMPLE: 1400022

Parameter	Units	40122388002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	10.6 ug/L	.04	0.045	86	70-130	
Selenium	mg/L	<1.0 ug/L	.04	0.035	86	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALIFIERS

Project: Grey Water Treatment Profile

Pace Project No.: 50129599

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Grey Water Treatment Profile

Pace Project No.: 50129599

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
50129599001	55:Filtered Water 20151006-032	EPA 200.8	MPRP/18196	EPA 200.8	ICPM/2148
50129599002	16:GW Influent 20151006-033	EPA 200.8	MPRP/18196	EPA 200.8	ICPM/2148
50129599003	16:GW In Process 20151006-034	EPA 200.8	MPRP/18196	EPA 200.8	ICPM/2148
50129599004	55:Filtered Water 20151008-015	EPA 200.8	MPRP/18196	EPA 200.8	ICPM/2148
50129599005	16:GW Influent 20151008-016	EPA 200.8	MPRP/18196	EPA 200.8	ICPM/2148
50129599006	16:GW IN Process 20151008-017	EPA 200.8	MPRP/18196	EPA 200.8	ICPM/2148

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Company: <u>DUKE ENERGY-EDWARDSPORT ICCC</u> Address: <u>15424 E SR 338</u> <u>EDWARDSPORT IN 47528</u> Email To: <u>MARK.PENACCKE@DUKE-ENERGY.COM</u> Phone: <u>812-735-5583</u> Fax: <u>812-735-5888</u> Requested Due Date/TAT: _____		Section B Required Project Information: Report To: <u>MARK D. P. CROOK, DUKE ENERGY</u> Copy To: <u>RHETT MOODY, DUKE ENERGY</u> Company Name: _____ Address: _____ Pace Quote Reference: _____ Purchase Order No.: _____ Project Name: <u>GREY WATER TREATMENT PROFILE</u> Project Number: _____		Section C Invoice Information: Attention: _____ Company Name: _____ Address: _____ Pace Quote Reference: _____ Purchase Order No.: _____ Project Name: _____ Project Number: _____	
Section D Regulatory Agency: _____ NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER <input type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER <input type="checkbox"/>		Site Location: _____ STATE: <u>INDIANA</u>		Page: _____ of _____ 1950074	

[illegible]

ORIGINAL		TEMP IN °C		RECEIVED ON	CUSTODY	SAMPLES INTACT
SAMPLER NAME AND SIGNATURE				Ice (Y/N)	Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER: DIANA REEDY SIGNATURE of SAMPLER: <i>Diana Reedy</i>		DATE Signed (MM/DD/YY): 10-08-15				
<i>Diana Reedy</i>	<i>10-8-15 1025</i>	<i>10/9/15</i>	<i>0907</i>	<i>CONGADOLAN Ave</i>	<i>199/15007g.u</i>	<i>N</i>
<i>Reedy</i>	<i>10-8-15 1025</i>	<i>10/9/15</i>	<i>0907</i>	<i>CONGADOLAN Ave</i>	<i>199/15007g.u</i>	<i>N</i>

Sample Condition Upon Receipt

Pace Analytical

Client Name Duke Energy - Edwardsport Project # 50129599

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other

Tracking #: 6416745417797

Custody Seal on Cooler/Box Present: ☒ yes ☐ no Seals intact: ☒ yes ☐ no

Date/Time 5035A kits placed in freezer

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☐ None ☒ Other Box/20PLC

Thermometer 1 2 3 4 5 6 A B C D E F

Type of Ice: Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 21.6°
(Corrected, if applicable)

Ice Visible in Sample Containers: ☐ yes ☒ no

Temp should be above freezing to 6°C

Comments:

Date and Initials of person examining contents: 10/8/15 Kelly

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	2. <u>No times (on C.O.C.)</u> <u>DATE only indicated in Sample ID</u>
Chain of Custody Relinquished:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	5.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
-Includes date/time/ID/Analysis		
All containers needing acid/base pres. have been checked?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9. (Circle) <u>HNO3</u> H2SO4 NaOH NaOH/ZnAc
exceptions: VOA, coliform, TOC, O&G		
All containers needing preservation are found to be in compliance with EPA recommendation (<2, >9, >12) unless otherwise noted.		
Residual Chlorine Check (SVOC 625 Pest/PCB 608)		10. Present Absent
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Headspace TCLP Volatiles	<input type="checkbox"/> Yes <input type="checkbox"/> No	12.
Headspace Wisconsin Sulfide / Acidity	<input type="checkbox"/> Yes <input type="checkbox"/> No	13.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Project Manager Review		
Samples Arrived within Hold Time:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	15.
Sufficient Volume:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	16.
Correct Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	17.

Client Notification/ Resolution:

Field Data Required? Y / N

Person Contacted:

Date/Time:

Comments/ Resolution: Times indicated on containers as follows, ITEM
#1=0945, #2=0955, #3=0950, #4=0820, #5=0810, #6=0815

Project Manager Review:

Date: 10/9/15

CLIENT Duke Energy - Edwardsport

COC PAGE 1 of 1950074
COC ID# 1950074

IGCC

Sample Container Count

Project # 50129599

Sample Line

Item	DG9H	AG1U	WG9U	AG0U	R	4/6	BP2N	BP2U	BP2S	BP3N	BP3U	BP3S	AG3S	AG1H	BP3C	BP1U	SP5T	AG2U	pH < 2	pH > 9	pH > 12
1																					
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

Container Codes

DG9H	40mL HCL amber vial	AG0U	100mL unpreserved amber glass	BP1N	1 liter HNO3 plastic	DG9P	40mL TSP amber vial
AG1U	1 liter unpreserved amber glass	AG1H	1 liter HCL amber glass	BP1S	1 liter H2SO4 plastic	DG9S	40mL H2SO4 amber vial
WG9U	4oz clear soil jar	AG1S	1 liter H2SO4 amber glass	BP1U	1 liter unpreserved plastic	DG9T	40mL Na Thio amber vial
R	terra core kit	AG1T	1 liter Na Thiosulfate amber glass	BP1Z	1 liter NaOH, Zn, Ac	DG9U	40mL unpreserved amber vial
BP2N	500mL HNO3 plastic	AG2N	500mL HNO3 amber glass	BP2A	500mL NaOH, Asc Acid plastic	SP5T	120mL Coliform Na Thiosulfate
BP2U	500mL unpreserved plastic	AG2S	500mL H2SO4 amber glass	BP2O	500mL NaOH plastic	JGFU	4oz unpreserved amber wide
BP2S	500mL H2SO4 plastic	AG2U	500mL unpreserved amber glass	BP2Z	500mL NaOH, Zn Ac	U	Summa Can
BP3N	250mL HNO3 plastic	AG3U	250mL unpreserved amber glass	AF	Air Filter	VG9H	40mL HCL clear vial
BP3U	250mL unpreserved plastic	BG1H	1 liter HCL clear glass	BP3C	250mL NaOH plastic	VG9T	40mL Na Thio. clear vial
BP3S	250mL H2SO4 plastic	BG1S	1 liter H2SO4 clear glass	BP3Z	250mL NaOH, Zn Ac plastic	VG9U	40mL unpreserved clear vial
AG3S	250mL H2SO4 glass amber	BG1T	1 liter Na Thiosulfate clear glass	C	Air Cassettes	VSG	Headspace septa vial & HCL
AG1S	1 liter H2SO4 amber glass	BG1U	1 liter unpreserved glass	DG9B	40mL Na Bisulfate amber vial	WGFX	4oz wide jar w/hexane wipe
BP1U	1 liter unpreserved plastic	BP1A	1 liter NaOH, Asc Acid plastic	DG9M	40mL MeOH clear vial	ZPLC	Ziploc Bag